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DEWBERRY CULTURE.

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INTRODUCTION.

The dewberry is closely related to the blackberry, having a root that lives for many years and a top that lives only two years. Like the blackberry, it bears fruit upon last year's canes, which die soon after they have fruited. It is distinguished from the blackberry in having canes that trail on the ground, while those of most blackberries are upright. From this habit it receives the name "trailing blackberry," which is commonly applied to it. In the wild state the canes of the dewberry form new plants by rooting at the tips, while blackberries propagate themselves by suckers. Further, the center flower in a dewberry cluster blossoms first, and the clusters are small and open, while in the blackberry cluster the outer and lower flowers open first and the clusters are usually rather dense. Figure 1 shows this difference between the fruit clusters.

The fruit of the dewberry is similar to that of the blackberry. Because it ripens earlier than the fruit of the true blackberry its culture has proved profitable in many sections. Recently some hybrids between the dewberry and the blackberry have come into cultivation, and the fruit of some of these ripens even earlier than that of the dewberry. These hybrids have not been sufficiently tested to indicate their entire range of adaptability, but in some places they have proved valuable.

P332HP AND P917HP

FIG. 1.—A cluster of Mayes dewberries, on the left, and of Mersereau blackberries, on the right. Note the small cluster of the Mayes dewberry, with its long berry stems, as compared with the larger and denser cluster of the Mersereau blackberry.

HISTORY OF THE DEWBERRY.

The dewberry is a native of America, and all varieties are of American origin. The Lucretia was the first to be introduced into general cultivation and is to-day the principal variety grown. It was found in West Virginia soon after the Civil War and brought to general notice about 1886. Since then many other varieties have been introduced, and at present about 25 are to be found under cultivation, none of which is as popular as the Lucretia.

The two States in which the dewberry is grown extensively on a commercial scale are North Carolina and New Jersey. It is also grown in Maryland, Texas, Missouri, Michigan, Colorado, and to some extent in most of the other States. The Lucretia variety, although the one chiefly grown, is not very hardy, and for this reason

its culture has been confined in the past to the milder climates. Recently it has been grown more in the Northern States and in Colorado and is proving profitable in favorable locations or when protected from severe winter conditions.

SITE OF A PLANTATION.

In regions where winter conditions are severe, the site for a dewberry plantation should be as well protected as possible from cold and from winds. In order to secure good air drainage, a site elevated above the surrounding country is preferred to low ground. However, it should not be exposed to drying winds or to other trying conditions.

Long hauls by wagons and jolting over rough roads will bruise the berries so they will not hold up well on the market. Therefore, the plantation should be as near local markets or a shipping station as possible.

SOILS.

The cultivated dewberry is grown on many types of soil. In its wild state it is found in open fields and pastures and by roadsides, especially where the soil is poor and the growth of grass and herbage is thin. In such locations its leaves can get more sunlight than where the soil is rich and the grass rank. Though the plants will grow on poor land, it is necessary in order to produce good crops of fruit that it be fertile or that plant food be supplied. In North Carolina the soil in many of the large dewberry fields is a coarse sand. Fertilizers are applied liberally to plantations on such soils. In other sections clay loams and other soils are used for dewberry fields, and if they are fertile less plant food need be added. As the dewberry has a very deep root, it is able to get moisture from a considerable depth and is, therefore, not as particular in its requirements as many other plants.

Dewberries should not be set on wet soil. Because of their deep rooting system they are more susceptible than many other fruits to wet soils. In some sections root-rot has been found to kill plants where the soil was only slightly wet; on the other hand, the soil must furnish a sufficient moisture supply, especially at the time the berries are developing and ripening. Coarse sandy loams with a clay subsoil have proved a desirable type in one dewberry section. Any fertile soil provided with good drainage and yet with a good supply of humus to retain moisture is suitable for growing dewberries.

PREPARATION OF THE SOIL.

As the dewberry plants are to occupy the soil for several years the land should be very thoroughly fitted before they are set out. If

the soil lacks humus, the use of cover crops before planting dewberries will be helpful. Much better results will be secured if the land is planted to cultivated crops for two years prior to setting it to dewberries. The plants will grow better the first year, and a crop will be secured earlier than without such preparation. Usually very little fruit is obtained the year after planting, yet figure 2 shows a plantation set the previous year which was yielding a good crop. This field had been carefully prepared before the plants were set.

P16891HP

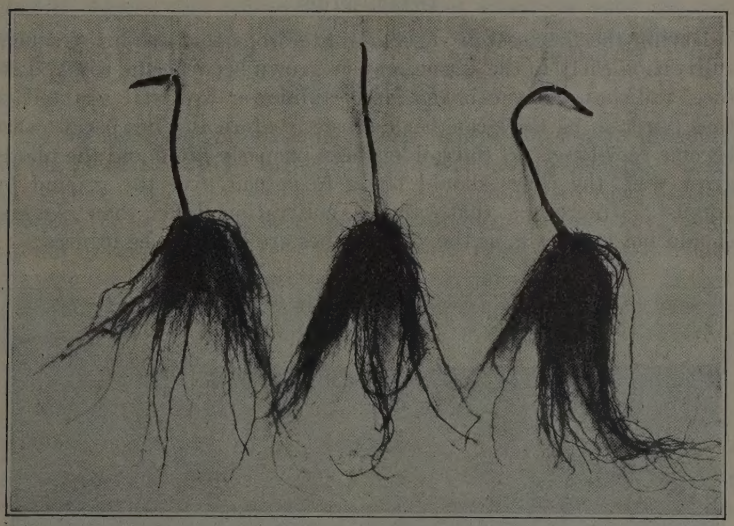
FIG. 2.—A field of Lucretia dewberries in North Carolina bearing a good crop the year after planting. (Photographed June 12.)

PLANTING.

Dewberry plants are usually set during the winter and early spring in the South and in early spring in the North. More mature plants are secured for setting in the spring than in the fall. Figure 3 shows strong Lucretia dewberry plants ready to be set. Because the essential factor of success in planting dewberries is a moist soil, they should be set as early in the spring as possible, for there is usually more moisture in the ground at that time than later and a larger percentage of the plants will live.

The plants should be set as soon as possible after being received from a nursery or after being dug. Exposure of the roots to the air dries and weakens them. When planting, the soil should be thoroughly packed about the roots. Thorough packing brings the soil

moisture in contact with the roots and prevents the air from drying them.



P18020HP

FIG. 3.—Tip-rooted Lucretia dewberry plants ready to be set.

If the hill system of training is to be used, the plants are usually set 5 feet apart each way. Figure 4 shows a field in which the canes

P13471HP

FIG. 4.—A field of Lucretia dewberries in New Jersey in their first season's growth, following spring planting. (Photographed July 30.)

are to be trained to stakes after the plants have made several months' growth. If the canes are to be trained in solid rows the plants are

usually set 3 feet apart in rows which are 4 to 6 feet apart. Figure 5 shows such a field.

INTERCROPS.

During the first season vegetable intercrops that require frequent cultivation early in the season may be grown between the rows. Lettuce, radishes, early cabbage, and cauliflower are well adapted to this purpose, as they can be harvested before the dewberry canes become very long. If the soil has been properly fitted and the plants grow well, the canes should begin to spread over the ground by August. Intercrops that require cultivation later than August should not be grown, as the young canes are likely to be injured.

P10575HP

FIG. 5.—A field of Mayes dewberries in Tennessee trained to the matted-row system, with a low wire under the row. (Photographed May 9.)

CULTIVATION.

Cultivation should begin immediately after the plants are set. In some sections cultivation should be as frequent as once each week during the first season, in order to keep the ground moist and the plantation free from weeds. In others, such frequent cultivation will not be necessary, once every 10 days being sufficient. When the canes which are allowed to trail on the ground the first year begin to interfere, cultivation should be discontinued, and nothing further should be done in the field until the following spring except in sections where winter protection is necessary. Any work during the autumn or winter is likely to injure the young canes. If they are bruised, they may break off at the bruised point in the next fruiting season and the fruit be lost. Therefore caution should be used at all times, as not only in the fall but at any time during the following spring and summer serious damage may be done by carelessness. The canes become very brittle and when loaded with fruit are very easily broken.

In most sections the canes are tied to stakes or wires before growth starts in the spring. Cultivation should be started immediately after growth begins and continued at frequent intervals until the new canes begin to interfere with cultivation, which is usually some time in August.

COVER CROPS.

At the last cultivation some growers sow a cover crop broadcast in the plantation, to be turned under the following spring. Others, in sections where cowpeas are used, drill one or two rows of these between the rows of the berry plants. Wherever possible cover crops should be used, as they help to protect the canes during the winter, prevent the land from washing, and add humus to the soil. If cowpeas are used and the vines grow very long, they may increase the expense of tying up the canes in spring, but the value of the cover crop will more than offset this.

FERTILIZERS.

The use of fertilizers in dewberry fields must be governed by the same principles that apply to their use with other fruits. As soils vary in the quantity and availability of the plant food they contain, the fertilizer problem is a local one which each grower must solve for himself. By using varying amounts of the different elements of plant food on different plats and keeping a record of the yield, each grower can readily determine what kinds and quantities of fertilizers to apply.

In one section of North Carolina dewberries are grown on coarse sandy soils. These soils as a rule are lacking in all the elements of fertility, and the application of a complete fertilizer is usually necessary. Although larger amounts of fertilizer are applied than may be generally necessary, the following description of the practices of successful growers in this section may prove of interest.

As soon as the plants have become established and are 2 or 3 inches high, cottonseed meal or stable manure is used to encourage a vigorous growth the first season. Some growers use about 500 pounds of cottonseed meal, while others use 10 to 15 tons of stable manure per acre.

After the first season two applications of fertilizer are given each year, the first one being made as soon as the canes have been tied up in the spring. At this time a complete fertilizer is usually applied, composed of 10 per cent of phosphoric acid, 2 or 3 per cent of nitrogen, and 8 per cent of potash. Some growers, having found that they do not need nitrogen for their soils, apply only potash and phosphoric acid. The quantity applied likewise varies with the soil and with the different growers, but 500 pounds per acre of a fertilizer analyzing 10–2–8 are commonly used.

The second application of fertilizer is made immediately after the fruit has been picked and all the canes, both old and new, are cut off, the object being to induce a rapid growth of vigorous new canes for the next year's crop. A fertilizer containing a large amount of nitrogen is used at this time. Either stable manure or cottonseed meal is commonly used. An application of 500 to 600 pounds of cottonseed meal per acre is considered sufficient, although there are growers using as much as 1,000 pounds. Growers using stable manure consider an application of 10 to 20 tons per acre sufficient. In addition to supplying nitrogen, stable manure adds large amounts of humus to the soil and is preferred when it can be readily secured.

P13330HP

FIG. 6.—A Lucretia dewberry field in North Carolina with the plants set 5 by 5 feet apart and the canes trained to stakes. (Photographed June 11.)

The practices mentioned above are those used by successful growers in North Carolina, and should prove helpful to growers in other sections in determining the applications for use under their particular conditions.

SYSTEMS OF TRAINING AND PRUNING.

The system of training to be used depends upon the climate, the cost of materials, and individual preference. In general, where suitable stakes can be secured for a reasonable price, the system of placing one at each hill and tying the canes to it will be most satisfactory; but in sections where stakes are very expensive some cheaper method must be used. Figure 6 shows a field with the plants 5 feet distant

in rows 5 feet apart and a stake driven beside each plant. Under this system the plants are farther apart than under other systems. The expense of cultivation will be less, as more can be done with horse labor and very little hand hoeing will be needed. Picking will be much easier than under most other systems and fewer berries will be lost.

Under North Carolina conditions, where the canes grow vigorously, the stakes should be from 7 to 7½ feet long. There the stakes are made from yellow pine and are about 2 by 3 inches in size. In other sections stakes of any wood that will not decay quickly in the ground are used. These stakes, placed about 3 inches to one side of the plant, are driven about 2 feet into the ground. The canes are tied to the stakes in early spring. This is done before growth starts, but after danger of severe freezing weather is past. Gloves are used in gathering the canes in a bundle and winding them around the stake in a spiral, as shown in figure 2. The canes are tied to the stake in two or three places, once at the top, and either once more half way up the stake or in two places distributed along the stake. Soft string must be used for this tying, as a small, hard string is likely to break the canes. The ends of the canes are cut off about 6 inches beyond the upper tying.

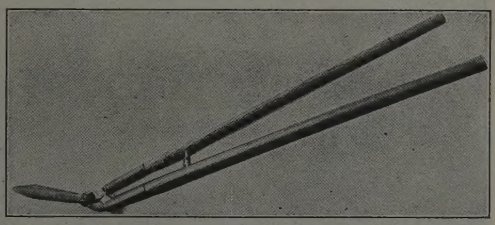


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FIG. 7.—Long-handled shears used in North Carolina for pruning dewberries. The steel blades are curved upward, thus enabling the pruner to cut the canes close to the crown without much stooping.

In North Carolina and in other States having a similar growing season, all the canes, both old and new, are cut off as close to the crown of the plant as possible immediately after the fruit has been picked. Figure 7 shows a tool used for this purpose. If there is a severe drought this cutting should be delayed till after a rain. The canes are removed from the field and usually burned. After they have been removed cultivation should start at once and be continued until the new canes begin to interfere. This will induce a vigorous new growth, on which the fruit for the following year will be borne. The new canes are allowed to run on the ground and are left there until the next spring, when they are tied to stakes in the same manner as the previous year's growth.

Sometimes, instead of single plants 5 feet distant two plants are used. These are set about a foot apart and a stake is driven into the

ground between them, the canes of both plants being trained to it. This method of planting offers no advantages over a field with one plant beside each stake, provided such a field is properly treated.

Another similar system is shown in figure 8, where the plants are set 3 feet apart in rows 5 feet apart. More plants are used to the acre by this method, and the yields recorded for such fields have been very much less than for the system where the plants are set 5 feet apart each way. More hand labor also is required under this system, and the training, though like that in the system described, is more difficult.

Still another method is illustrated in figure 9. Under this system the plants are usually set 3 feet apart in rows 6 feet apart. A stake

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FIG. 8.—A Lucretia dewberry field in North Carolina, showing plants set 3 feet apart in rows 5 feet apart and the canes from two plants trained to one stake. (Photographed June 8.)

projecting about 3 feet above the ground is set half way between two plants. In the Central West the canes from each of the two hills are brought directly to the top of the stake, the canes from one hill tied to those from the other, and both sets of canes tied to the top of the stake. On the Pacific coast a stiff curved wire is sometimes used to help support the canes. One end of the wire is placed in one hill. It is curved over the top of the stake and fastened to it and the other end is placed in the second hill. The canes from each hill are wound around this wire before being tied to the end of the stake. This system of tying the canes from two hills to one stake seems especially adapted to regions where the canes do not grow very long.

Where stakes are expensive a wire trellis is often used. The plants are set about 3 feet apart in rows 6 feet apart. Posts are set along the row, from 20 to 40 feet apart, depending on their strength and the vigor of the canes. The posts project about 4 feet above the ground, and a wire about $3\frac{1}{2}$ feet above the ground is stretched along them. The canes are gathered together in a bunch and tied to the wire, as shown in figure 10. In Michigan the ends are commonly cut off just above the wire. In some places, however, the ends are tied along the wire and left to bear fruit.

In some regions a trellis is made with two wires. The posts are set about $5\frac{1}{2}$ feet high and the wires are strung one above the other, about 3 and 5 feet above the ground. The canes are tied to the wires, part along the upper wire and part along the lower. This method is rarely used except on the Pacific coast.

P94HP

FIG. 9.—A field of dewberry plants in eastern Maryland trained to posts. The canes of two plants are tied to the top of one post. (Photographed May 26.)

In other regions neither stakes nor a wire trellis are used. The plants are set from 18 to 36 inches apart in rows 4 to 6 feet apart. Throughout the summer the plants are cultivated in one direction only. The tips are usually allowed to root at will along the row, but not between the rows. In Texas, where this system is used, it is necessary before picking to go over the plantation with a sickle or knife to cut the new canes back. The canes interfere with the pickers, and the cutting back does not injure the plants. After the crop has been harvested the canes are mowed as close to the ground as is possible with a machine. When dry they are burned without being removed from the field. This cleans the field of diseases and insects that may be on the canes, besides saving the cost of removing the old canes. The fields are then cultivated during the remainder

of the summer and the new canes are allowed to make a solid row. Occasionally in Texas a plow is used to cut off all the plants just below the crowns. This removes all diseases and insects in the crowns and the new canes spring directly from the roots. These canes will not be as strong as those from the crown, but will bear a good crop the following year and a full one the second year. In Texas many dewberry fields when trained in this manner are mulched during the winter or spring with prairie hay. The berries are borne so near the ground that a thick layer of this hay is needed between the rows to protect both the pickers and the berries from the soil in case of rain. It also helps to conserve the moisture. After

P16851MP

FIG. 10.—A Lucretia dewberry field in southwestern Michigan. The bearing canes of each plant have been tied to the wire in a bunch and the ends cut off about 6 inches above the wire. (Photographed July 9.)

picking is over the hay can be placed on the rows to help burn the old canes. Sometimes as the new canes come up, the ends are pinched back so they will form a small much-branched bush.

In Colorado no trellis is used and the plants are trained in rows. When the young canes reach a height of about 18 inches they are cut back to about 12 inches, to force the laterals to start. Just before picking, the laterals are shortened to enable the pickers to get the berries easily. No further pruning is done until the following spring, when the old canes are removed and the younger ones shortened to about 3½ feet. Under this system clean picking is difficult and many soft berries are liable to be put into the baskets, as the fruit is often partially concealed by the foliage.

Variations of this system are in use. Stakes projecting about a foot above the ground are set about 10 feet apart along the row, with a wire strung on the tops of them, and the canes are thrown over the wire. Sometimes two rows of stakes about 12 inches apart, with wires as in the single row of stakes, are used. The canes are simply allowed to grow over the wires.

WINTER PROTECTION.

In the Southern States, and in most of those States where snow covers the ground through the winter, no protection of the canes is necessary, as they trail close to the ground. In some parts of the Central Western and Northern States the canes must be protected during the winter. This is usually accomplished by covering the canes with 2 or 3 inches of earth. If the plants are in solid rows this can be done very cheaply by turning a furrow about 3 inches deep on the plants. The canes should be covered before there is danger of hard freezes and uncovered in the spring after the danger of freezing is past.

P13329HP

FIG. 11.—A 32-quart crate of Lucretia dewberries grown in North Carolina. (Photographed June 11.)

HARVESTING.

Dewberries are picked and handled in the same manner as blackberries. They are usually picked in quart baskets and sent to market in crates holding either 24 or 32 baskets. Figure 11 shows a crate of Lucretia dewberries. The same care should be observed in handling dewberries as in handling blackberries. The fruit should be picked at regular intervals, usually every other day. In some sections in very warm weather it will be necessary to pick every day, while in cooler weather three or four days may intervene between pickings. All ripe berries should be picked, because if any are left they

will be too soft at the next picking to be shipped with the other berries. These overripe berries, as well as injured or bruised berries, will decay more rapidly than sound ones and may cause all the adjacent berries in the basket to decay.

YIELDS.

The yields of dewberry plantations will vary greatly with the different conditions under which they are grown. The results obtained by growers in North Carolina may give some indication of the size of the crop. Crops of 100 crates of 32 quarts each per acre are obtained year after year. Though the average yields may be somewhat smaller, good plantations favorably located should yield as much. Some growers average much more, but these men show exceptional ability or have exceptional conditions. Figure 12 shows part of a field of the Lucretia variety, now 12 years old, which has averaged more than 100 crates per acre per annum since coming into bearing.

P16806HP

FIG. 12.—A Lucretia dewberry field in North Carolina, set in 1903, which has averaged more than 100 crates per acre since coming into bearing. (Photographed June 10.)

DISEASES AND INSECTS.

There are two serious diseases of the dewberry—anthracnose and double-blossom. Other diseases which may cause considerable trouble are the common leaf-spot, the orange rust, and the cane rust. Dewberry growers at present pay little attention to the last three diseases, though they undoubtedly cause considerable injury at times. The anthracnose and double-blossom are more serious and are con-

trolled in southern sections by cutting off all the canes, both old and new, immediately after harvesting the crop; in fact, this cutting out of all the canes after the harvest is considered by southern growers as the most important operation in dewberry culture. In North Carolina the canes should be cut as close to the crown as possible and removed from the field. By thorough cultivation and the use of fertilizers vigorous new canes free from these two diseases will be secured by fall for bearing the next year's crop. In Texas the common practice is to mow the field after harvesting the crop and to burn the canes in the fields. Sometimes a bush scythe or sharp hoe is used for cutting the canes. Wherever the growing season is long enough to allow sufficient new growth to mature before winter to bear the next season's crop, either the North Carolina or Texas method should be used. Anthracnose is a serious disease in nearly all parts of the country. Double-blossom is common in New Jersey, Tennessee, and States south of them and as far west as Texas. This disease is controlled in sections where the canes are not cut off after picking by removing all buds which show infection in the spring.

Insects are not usually found to be serious on dewberries. Specific information in regard to both insects and diseases may be secured by writing to the nearest State agricultural experiment station or to the United States Department of Agriculture, Washington, D. C., and furnishing specimens of the affected parts.

PROPAGATION.

Plants may be secured from any reliable nursery at a reasonable price, and in starting a plantation this procedure is usually followed. Dewberry growers already having a plantation usually raise their own plants by covering the tips of the young canes with a few inches of soil late in the summer or early in the autumn. These tips will root freely, and new plants will be ready to dig late that fall or early the next spring. A rooted tip should be cut off 4 to 6 inches from the ground when desired for planting. Only the strongest plants should be set.

Sometimes the dewberry is propagated by means of root cuttings. When this method is used, pieces of the larger roots about 3 inches long are planted 2 or 3 inches deep. If the root cuttings are placed in moist but not wet sand in the late autumn they should have callused by spring. They should then be planted in the nursery row to grow for one year, after which they are ready to set in the field. This latter method is not often used, as rooted tips are secured so easily.

DURATION OF THE PLANTATION.

The duration of the plantation will doubtless depend on the section of the country in which the dewberries are grown, on the system

of training used, and on the attention given it. In North Carolina plantations 15 years old are still productive. A few even older ones are still yielding well, but most of them have been planted too recently to make possible an accurate estimate of their probable life.

POLLINATION.

It has been found that when certain varieties of dewberries are planted by themselves no berries will be formed. The reason is that the flowers of such varieties do not have pollen that will fertilize their pistils. Some variety having flowers that open at the same time and bear an abundance of good pollen must be planted near them. Bees and other insects will then carry the pollen from the flowers of one variety to those of the other. The Gardenia, Lucretia, and Mayes varieties are usually self-fertile and may be planted by themselves without provision for cross-pollination. The Premo and some other less known varieties, such as the Chestnut, Manatee, and Rogers, are reported to be not entirely self-fertile, and should be planted with other varieties as pollinizers. The usual method is to plant two rows of one variety; then two rows of a second variety.

VARIETIES.

There are very few varieties of dewberries widely grown in the United States, the Lucretia being the leading variety in all except the Gulf Coast States. In Texas the Mayes is the leading variety, while in the other Gulf Coast States very few dewberries of any kind are raised. In California the Gardenia is raised to a considerable extent, while in North Carolina the Premo is grown slightly. The following notes will indicate the more important characteristics of the leading varieties.

Gardenia.—This variety has become very popular in California, but has not been extensively tested in the East. In California the canes are very productive, the berries large, long, of very good quality, and ripening about 10 days before the Lucretia.

Lucretia.—This is the best known and most widely grown dewberry. The canes are very vigorous and productive. In protected locations this variety is hardy in the Northern States. In Iowa, Minnesota, Colorado, and neighboring States it is usually protected in winter by covering with soil. The canes are susceptible to anthracnose and double-blossom. The berries are large, long, firm, of good quality, and are picked for shipping as soon as they turn black, but they do not become very sweet unless they are left on the plants a day or two longer. They ripen about June 1 in the North Carolina section, and are later than the Gardenia, Mayes, or Premo.

Mayes (synonym, *Austin Mayes*).—This variety originated in Texas and is the leading one in that State. It has been grown to a slight extent in many other States, but although considered more productive and earlier than the Lucretia it is too soft to ship far. The canes are vigorous, productive, and subject to double-blossom and anthracnose. The berries are very large, not as

long as the Lucretia, and have large drupelets. (See fig. 1.) Although soft for shipping, they are of excellent quality. The variety ripens at least a week before the Lucretia and slightly earlier than the Premo.

Premo.—The Premo is grown to some extent in the dewberry section of North Carolina and in other parts of the eastern United States. It ripens its fruit in North Carolina nearly a week earlier than the Lucretia, and for this reason is considered desirable by many growers. The plants resemble the Lucretia very closely, but are not as productive. The flowers are imperfect, and plants of one of the other varieties must be set near to pollinate this variety. The berries average slightly smaller than the Lucretia, but are as firm and as good in quality.

HYBRIDS AND RELATED FORMS.

Several other varieties of dewberries are grown to a slight extent, some of which give promise of being valuable in certain limited sections. There are also several blackberries and blackberry-dewberry hybrids, which are sometimes, or usually, trained like the dewberries. Thus, the McDonald, a blackberry-dewberry hybrid, listed with blackberries in a previous publication,[1] is trained in the same manner as the dewberries in Texas. Farther north it is commonly trained in a manner similar to that of the ordinary blackberry. It ripens nearly 10 days before the Lucretia and may be planted in dewberry sections with the Lucretia as a pollinizer for it. The Mammoth, another blackberry-dewberry hybrid listed in Farmers' Bulletin 643 and grown on the Pacific coast, trails on the ground like the dewberries. It is, however, somewhat more vigorous and should have a pollinizer. On the Pacific coast the Evergreen blackberry and in New Jersey the Diamond (*Black Diamond*, *Star*, *Wonder*, *Ewing Wonder*, *Atlantic Dewberry*) blackberry, supposed to be a seedling of the Evergreen, are trained in a manner similar to that used for dewberries. In New Jersey the Diamond is trained to stakes, as illustrated in figure 10. The Evergreen is trained to a wire trellis, as illustrated in Farmers' Bulletin 643.

SUMMARY.

The dewberry, although closely related to the blackberry, is distinguished from it in having trailing canes that root at the tip and in having small flower clusters, while the canes of most blackberries are erect, do not root at the tip, and the flower clusters are large. The dewberry is grown for its fruit, which ripens earlier than that of the blackberry.

At present the dewberry is raised more widely in North Carolina and New Jersey than in other States, but it is adapted to nearly all parts of the country. Although suited to many types of soils it is

[1] Darrow, G. M. Blackberry culture. U. S. Dept. Agr., Farmers' Bul. 643, 13 p., 8 figs. 1915.

grown most extensively on coarse sandy loams. Its deep rooting system enables it to secure moisture from such soils better than many other crops.

The plants are usually set in early spring, either 5 feet distant each way or 3 feet apart in rows 4 to 6 feet apart, depending on whether the hill system of culture or the solid-row system is to be used. Until the canes begin to interfere, thorough cultivation is given the first season.

The following spring, just before the buds start, is the usual time to train the canes. In North Carolina and in some other States where the hill system is used, stakes about 2 inches square are set by each plant and project about 5½ feet above the ground. The canes are then gathered together, wound in a spiral about the stake, and tied with coarse string. After the crop has been harvested, both old and new canes are cut off at the surface of the ground and removed from the field. This cutting out of the old canes removes all the diseases on them, and the new canes, which later grow up, are usually free from disease.

Where the solid-row system of culture is employed many methods of training are used. In many places a post about 3 feet high is set between every two plants. The canes from each of the two plants are brought to the top of this post and tied to it, the projecting ends of the canes being then cut off.

In regions where posts are expensive a wire trellis is often used. Posts are set along the row from 20 to 40 feet apart, and a wire about 3½ feet above the ground is stretched along them. The canes of each plant are gathered together and tied to the wire.

In southern regions, where the seasons are long enough to allow sufficient new growth to appear, all the canes, both old and new, are cut off after the fruit has been picked. In northern regions, where sufficient new growth can not be secured, the old canes only are removed at this time.

In some places where the solid-row system is used the canes are allowed to run on the ground or are thrown over a low wire about a foot above the ground. This makes picking more difficult, but saves expense in training. In Texas and some other Southern States where this method is used the canes are mowed off at the surface of the ground and burned. This cleans the field of disease, and the new growth of canes is much healthier.

The Lucretia is the variety principally grown and is generally the most desirable. The Mayes is the leading variety in Texas, but its fruit is softer than that of the Lucretia. The Premo, which closely resembles the Lucretia, ripens earlier but is not generally as productive. The Gardenia is grown to some extent in California, but has not yet proved to be adapted to the eastern United States.

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